2. Emily

Program Name: Emily.java   **Input File: emily.dat**

Emily needs your help writing a program that reads in a simple mathematical expression consisting of an integer operand, a binary operator, and another integer operand. The program should calculate the result of the mathematical operation and display it to the console.

Valid binary operators are:
- + (performs addition)
- - (performs subtraction)
- X, x, and * (performs multiplication)
- / (performs division)

Input: Input will consist of an integer N, the number of test cases. The number of test cases will be in range [1,20]. Each subsequent line will contain the mathematical expression of the form: "operand1 + operand2", "operand1 - operand2", "operand1 X operand2", "operand1 x operand2", "operand1 * operand2", or "operand1 / operand2". operand1 and operand2 are guaranteed to be integers in range of [-255,255]. There will be a guaranteed space between operand1 and the binary operator, as well as a guaranteed space between the binary operator and operand2. Note: the input will never consist of division by 0 and the remainder will be guaranteed to be a nonnegative number.

Output: For each mathematical expression, you are to output the original mathematical expression followed by a space, an equal sign, a space, and the result of the operation. For the division case only, you are to output the result of the integer division, followed by a space, "remainder", space and the remainder of the division that was performed. See the Sample output.

Sample input:
```
7
1 + 2
5 - 1
4 * 3
8 x 6
9 X 4
20 / 6
40 / 10
```

Sample output:
```
1 + 2 = 3
5 - 1 = 4
4 * 3 = 12
8 x 6 = 48
9 X 4 = 36
20 / 6 = 3 remainder 2
40 / 10 = 4 remainder 0
```